

Trillian – Linux on IA-64

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Agenda

- The Project
- The Team
- Architecture
- Development Environment
- Development Schedule
- ISV Timeline and Issues

The Project

- **Goals**

- ◆ Single port
- ◆ Optimized for IA-64
- ◆ Open source availability at product launch

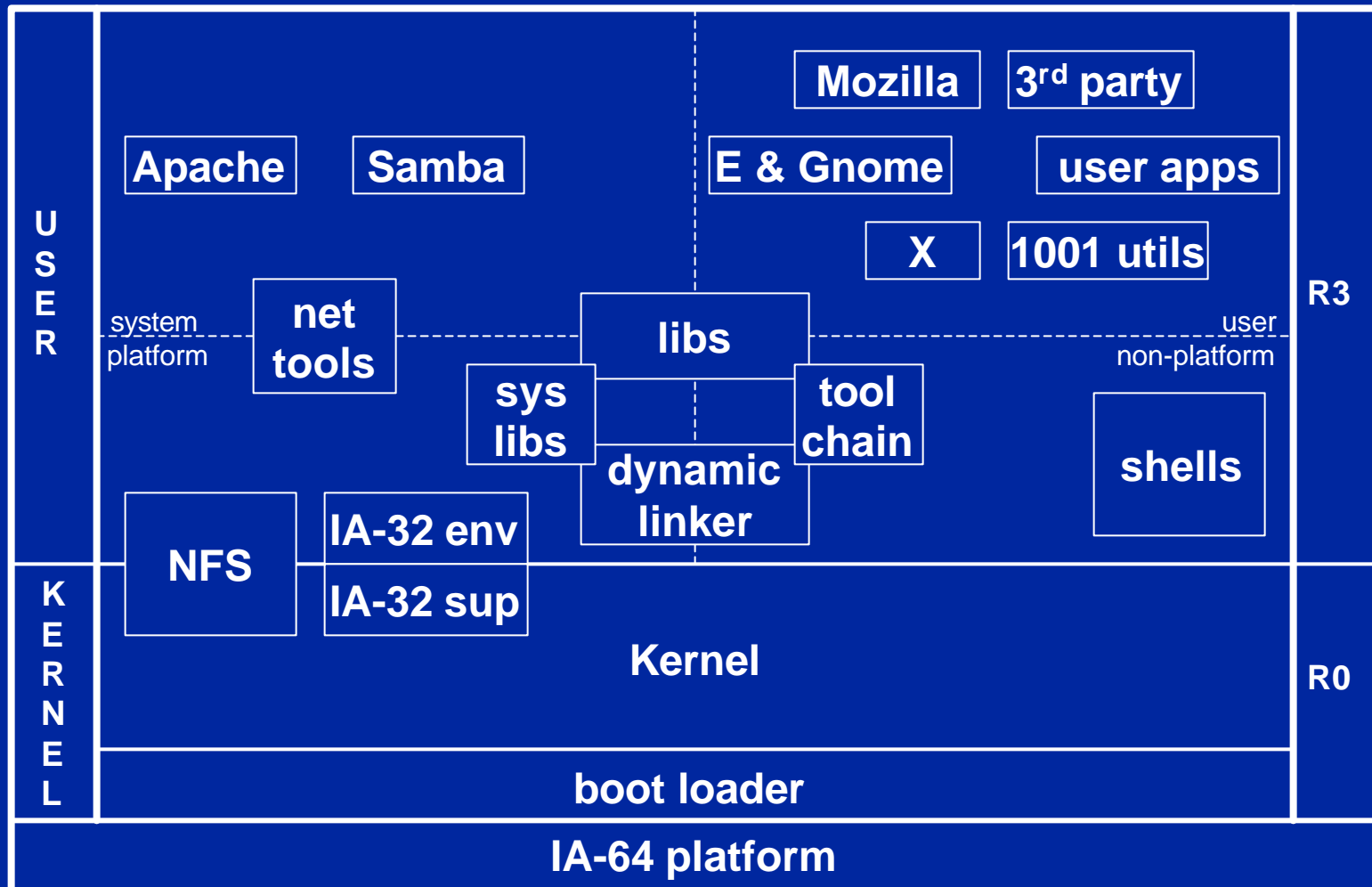
- **Co-operative effort to deliver the best code**

- ◆ Similar to classic Linux model but development done under NDA
- ◆ Many players contributing technology and resources
 - Cygnus, HP, IBM, Intel, SGI and VA Linux Systems

The Team

<i>Company</i>	<i>Tasks</i>
Cygnus	GNUPro Toolkit (gcc, g++, gdb)
HP	kernel, initial gcc, gas, ld, emacs; glibc (CERN)
IBM	kernel
Intel	kernel, IA-32, platform, s/w dev env, apache
SGI	compiler, kernel
VA Linux	kernel, SMP, platform, E & GNOME, XFree86, cmds & libs, bootloader, OpenGL, GIMP

Architecture



Key Features

- **It really is just Linux!**
- **LP64 programming model**
 - ◆ 64-bit kernel
 - ◆ 64-bit virtual memory support
- **IA-32 backward compatibility**
 - ◆ Linux/x86 binaries run without recompile
- **Enterprise features**
 - ◆ SMP, large memory, large file systems, performance monitoring

Key Features (cont)

- Kernel debugger
- Optimized tool chains
- Advanced Configuration and Power Interface (ACPI) support
- Extended Firmware Interface (EFI) support

IA-64 Linux Attributes

Development platform:	Linux/x86
Tool chain:	Standard GNU tool chain based (gcc, g++, glibc, gdb, gas, ld, etc)
Simulator:	Full platform simulator (IA-64 s/w dev. env.)
Data model:	LP64
Byteorder:	little endian
Object file format:	ELF64/IA-64 and ELF32/IA-32
Page size:	4K or 8K
Virtual address space size:	64 bits

Development Environment

- **Development Methodology**

- ◆ Distributed development
- ◆ Shared source repositories
- ◆ Bug databases and mailing lists

- **Development Tools**

- ◆ Full GNU tool chain, revision control (BitKeeper)
- ◆ Cross compiling now, native hosting later

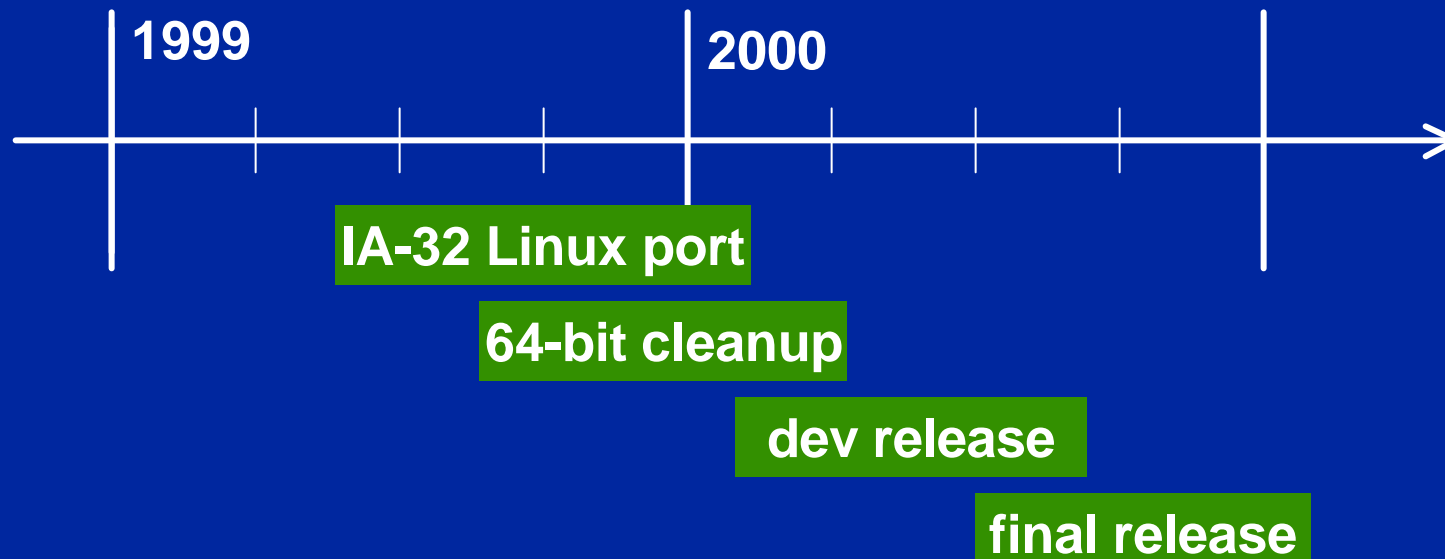
- **Issue Resolution**

- ◆ The best code wins, new features lose to conformance to Linux/x86

Development Schedule

<i>Milestone</i>	<i>Actual/Target</i>
Single user on IA-64 s/w dev env	5/28/99
OS boot on IA-64 s/w dev env	6/25/99
Simple Install (CD)	Q4 1999
Development Release	Early Q1 2000
Advanced Apps & Utils	Q2 2000
Production Release	Itanium™ Launch

ISV Timeline



- Port to IA-32 Linux now
- Perform 64-bit code cleanup and prepare for IA-64
- Expect development release in early Q1 2000
- Expect final release with Itanium™ release

Porting to IA-64 Linux

...in three easy steps

- Port to Linux IA-32...now
- Get 64-bit clean
- Recompile for IA-64

Development Tools

- **Cygnus optimized GNUPro Toolkit**
 - ◆ gcc/g++/gdb for the Itanium™ processor
 - ◆ Base port Q4 1999, optimized port Q1 2000
 - ◆ Production release with Itanium™ processor release
- **SGI Compilers**
- **GNU C library (glibc)**
- **Other Open Source development tools**
 - ◆ JAVA, Perl, Python, PHP, Tcl/Tk, etc.
- **OEMs will provide tools for their platforms**

ISV Resources

- www.linuxia64.org
 - ◆ Status reports
 - ◆ Discussion forums
 - ◆ Technical resources
 - ◆ Linux IA-64 evangelism
 - ◆ Software downloads

Conclusions

- **ISVs can participate in Linux momentum and growth**
 - ◆ Follow the three easy steps to port!
- **Linux will be ready at Itanium™ launch**
 - ◆ LP64 model fully supported
 - ◆ Support for existing IA-32 binaries
- **ISV engagement in Q1 2000**
 - ◆ On-line resources

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